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AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An integrated fuel cell and integrated circuit device, comprising:

a semiconductor substrate, and

a fuel cell, located on the semiconductor substrate, comprising

a first electrode and a second electrode configured to define a reaction region, where one of the first and second electrodes is a cathode and the other is an anode;

a catalytic layer that is permeable at least to protons and is configured to permit catalytic activity, the layer positioned between the first electrode and the second electrode;

a reservoir containing fuel disposed with the first electrode; and

a reactant delivery device configured to provide a reactant, where the reactant reacts with protons from the fuel to generate current, the reactant delivery device positioned on the side of the second electrode;

where the fuel is integrated into the material of the first electrode.

2. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where the first electrode comprises a contacted material that is treated with the fuel.

3. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where the first electrode comprises palladium.

4. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where the fuel contained in the reservoir is hydrogen.

5. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where the reactant delivery device comprises a space surrounding at least the second electrode or space surrounding the reaction region.

6. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, further comprising an electrical circuit.

7. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where the electrical circuit comprises a CMOS circuit.

8. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, further comprising a control device for controlling at least one of a current flow or an energy infeed.

9. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, further comprising a control device to at least one of activate an

electrochemical reaction between the electrodes or complete an electric circuit through the electrodes.

10. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 9, where the control device comprises a closed closure device, wherein a space around the reaction region of the reactant has no reactant, and wherein reactant from external space enters the reaction region by opening the closure device.

11. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where the fuel cell is configured as a replaceable module.

12. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, further comprising a fuel sensor that is positioned in at least one of the reservoir or the reaction region between the protons and the reactant, to determine an available amount of fuel.

13. (Previously Presented) A method for manufacturing an integrated fuel cell and integrated circuit device, comprising:

positioning a proton-permeable layer between a first electrode and a second electrode, the proton-permeable layer configured to permit catalytic activity;

configuring a fuel delivery device as an integral part of one of the electrodes; and

treating a material of the fuel delivery device with fuel.

14. (Currently Amended) An integrated fuel cell and integrated circuit device, comprising:

a semiconductor substrate, and

a fuel cell, located on the semiconductor substrate, comprising

a first electrode and a second electrode configured to define a reaction region, where one of the first and second electrodes is a cathode and the other is an anode;

a catalytic layer that is permeable at least to protons and is configured to permit catalytic activity, the layer positioned between the first electrode and the second electrode;

a reservoir containing fuel disposed with the first electrode; and

a reactant delivery device configured to provide a reactant, where the reactant reacts with protons from the fuel to generate current, the reactant delivery device positioned on the side of the second electrode;

where the reactant for generating a quantity of current is integrated into the material of the second electrode, and the fuel is integrated into the first electrode; and

where only reactant from the reactant delivery device can react with the fuel.

15. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 14, where the reactant delivery device comprises a contacted material that is treated with the reactant.

16. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 14, where oxygen is integrated into the reactant delivery device.

17. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 14, further comprising an CMOS electrical circuit electrically coupled to at least one of the electrodes.

18. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 17, further comprising: a control device for controlling a flow of current or an infeed of energy.

19. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 17, further comprising, a control device for at least one of activating an electrochemical reaction between the electrodes or completing the electrical circuit through the electrodes.

20. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where the control device comprises a closed closure device, wherein

space around the reaction region has no fuel, and wherein fuel from an external space enters the reaction region by opening the closure device.

21. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 17, wherein at least the fuel cell is configured as a replaceable module.

22. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 17, further comprising: a reactant sensor that is positioned in at least one of the reactant delivery device or in the reaction region between the protons and the reactant, to determine an available amount of reactant.

23. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 21, further comprising a circuit for measuring the resistance of one of the reservoir or the reactant delivery device and determining the remaining amount of one of fuel or reactant.

24. (Cancelled)

25. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 21, further comprising a measuring device configured to determine at least one of a current or a voltage generated by a reaction between the fuel and the reactant.

26. (Previously Presented) The integrated fuel cell and integrated circuit device of claim 1, where no additional fuel supply channels and separate fuel reservoirs are provided.

27. (New) An integrated fuel cell and integrated circuit device, comprising:

a semiconductor substrate, and

a fuel cell, located on the semiconductor substrate, said fuel cell consisting of:

a first electrode and a second electrode configured to define a reaction region wherein said first electrode includes fuel integrated into a material of said first electrode and wherein either said second electrode includes a reactant delivery device configured to provide a reactant, where the reactant reacts with protons from the fuel to generate current, or the reactant delivery device is positioned on the side of the second electrode and wherein one of the first and second electrodes is a cathode and the other is an anode; and

a catalytic layer that is permeable at least to protons and is configured to permit catalytic activity, the layer positioned between the first electrode and the second electrode.